

1 Listing of the Claims:

2       This listing of claims will replace all prior versions, and  
3 listings, of claims in the application using (Original) (Currently  
4 Amended) (New) (Canceled) (Previously Presented) nomenclature, as  
5 recited in the below listing of claims.

6 1. (Currently Amended) A method of broadcasting from a proximal  
7 cache at a proximal internet protocol address (IPA) routing  
8 information for indicating an originator storing web content data  
9 associated with an originating uniform resource locator (URL) of a  
10 web server at an originating IPA permanently storing the web  
11 content data, the method comprising the steps of:

12       generating at the proximal IPA an originating URL identifier  
13 for indicating the URL,

14       generating at the proximal IPA a sourcing IPA for indicating  
15 the originator,

16       generating at the proximal IPA a destination IPA for  
17 indicating a destination cache,

18       associating at the proximal IPA the sourcing IPA and the  
19 originating URL as the routing information, and

20       transmitting the routing information from the proximal cache  
21 at the proximal IPA to the destination cache at a destination IPA,  
22 the transmitting of the routing information associates the sourcing  
23 IPA the originating URL with the destination IPA.

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1 2. (Currently Amended) The method of claim 1 further comprising the  
2 steps of:

3       generating a distance metrics for indicating a web hop  
4 distance of a number of the plurality of cooperative web caches  
5 through which the URL web content data would be communicated from a  
6 source at the sourcing IPA through the a plurality of cooperative  
7 web caches to the proximal web cache.

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9 3. (Currently Amended) The method of claim 2 wherein,

10       the originating URL ~~identifier~~ is a proximal URL ~~identifier~~,  
11 the sourcing IPA is the proximal IPA, the proximal cache stores  
12 locally the web content data, and

13       the distance metric is one indicating that one web hop is  
14 between the destination cache to the proximal cache.

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16 4. (Currently Amended) The method of claim 2 wherein, the  
17 originating URL ~~identifier~~ is a source URL ~~identifier~~,

18       the sourcing IPA indicates an IPA location of the source  
19 distally storing the web content data,

20       the distance metric is greater than one indicating a number  
21 greater than one of the number of web hops between the destination  
22 cache through the proximal cache to the source distally storing the  
23 web content data.

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25 5. (Canceled)

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1 6. (Previously Presented) The method of claim 4 wherein,  
2 the source is the web server distally and permanently storing  
3 the web content data, and  
4 the sourcing IPA is a web server IPA indicating the IPA  
5 location of the web server.

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8 7. (Currently Amended) The method of claim 1 wherein,  
9 the originating URL ~~identifier~~ is selected from the group  
10 consisting of,

11 an exact URL ~~identifier~~ being an exact URL comprising a  
12 plurality of URL components,

13 a wildcard URL ~~identifier~~ being a wildcard URL comprising a  
14 plurality of URL components a last URL component of which being a  
15 wildcard component, and

16 a coded URL ~~identifier~~ being a coded URL comprising a series  
17 of hashing codes of a decomposed URL being a decomposition of the  
18 URL selected from the group consisting of either an exact URL or a  
19 wildcard URL each of which comprising a series of URL components,  
20 the series of hashing codes being a sequence of hashing codes of  
21 respective URL segments of a respective series of increasingly  
22 concatenated URL components of the series of URL components of the  
23 URL.

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1 8. (Currently Amended) A method of broadcasting from a proximal  
2 cache at a proximal internet protocol address (IPA) a routing  
3 information for indicating a distal web cache storing web content  
4 data associated with a uniform resource locator (URL) of a web  
5 server permanently storing the web content data, ~~the~~ a proximal web  
6 cache is a first one of a plurality of cooperative web caches, the  
7 distal web caches is a last one of the plurality of cooperative web  
8 caches, the method comprising the steps of:

9       generating at the proximal IPA a distal URL ~~identifier~~ for  
10 indicating the web content data of the distal URL stored in the  
11 distal web cache,

12       generating at the proximal IPA the proximal IPA for indicating  
13 the location of the proximal cache,

14       generating at the proximal IPA a destination IPA for  
15 indicating a destination cache,

16       generating at the proximal IPA a distance metric for  
17 indicating a web hop distance of any number of the plurality of  
18 cooperative web caches through which the web content data would be  
19 communicated from the distal web cache to the destination web  
20 cache,

21       associating at the proximal IPA the proximal IPA and the  
22 distal URL ~~identifier~~ and the distance metric as the routing  
23 information, and

24       transmitting the routing information from the proximal cache  
25 at the proximal IPA to the destination cache at a destination IPA,  
26 the transmitting of the routing information associates the sourcing  
27 IPA the originating URL with the destination IPA.  
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1 9. (Original) The method of claim 8 wherein,

2 the distance metric is greater than one indicating a number  
3 greater than one of the number of web hops between the destination  
4 cache through the proximal cache to the distal web cache storing  
5 the web content data.

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7 10. (Currently Amended) The method of claim 8 wherein, the distal  
8 URL identifier is selected from the group consisting of,

9 an exact URL ~~identifier being an exact URL~~ comprising a  
10 plurality of URL components,

11 a wildcard URL ~~identifier being a wildcard URL~~ comprising a  
12 plurality of URL components a last URL component of which being a  
13 wildcard component, and

14 a coded URL ~~identifier~~ being a coded URL comprising a series  
15 of hashing codes of a decomposed URL being a decomposition of the  
16 exact URL or the wildcard URL ~~selected from the group consisting of~~  
17 ~~either an exact URL or a wildcard URL each of which comprising a~~  
18 ~~series of URL components~~, the series of hashing codes being a  
19 sequence of hashing codes of respective URL segments of a  
20 respective series of increasingly concatenated URL components of  
21 the series of URL components of the exact URL or the wildcard URL.

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1 11. (Currently Amended) The method of claim 8 further comprising  
2 the steps of:

3       repeating the distal URL ~~identifier~~ generating step, proximal  
4 IPA generating step, distance metric generating step, the  
5 associating step, a plurality of times for generating a plurality  
6 of routing information each comprising a distal URL ~~identifier~~ and  
7 a respective distance metric, and

8       incorporating the plurality of routing information within a  
9 protocol data structure within a routing packet prior to the  
10 transmitting step, the routing protocol packet comprising the  
11 distal URL and a respective distance metric and comprising the  
12 proximal IPA and the destination IPA.

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12. (Currently Amended) A method of broadcasting from a proximal cache at a proximal internet protocol address (IPA) routing information for indicating a distal web cache storing web content data associated with an originating uniform resource locator (URL) of a web server permanently storing the web content data, ~~the~~ a proximal web cache is a first one of a plurality of cooperative web caches, the distal web cache is a last one of the plurality of cooperative web caches, the method comprising the steps of:

storing at the proximal IPA in a routing table a plurality of originating URLs ~~identifier~~ cross referenced to a respective plurality of distance metrics,

generating at the proximal IPA a URL identifier of the plurality of originating URLs ~~identifier~~, the originating URL ~~identifier~~ for indicating the web content data of the originating URL stored in the distal web cache,

generating at the proximal IPA the proximal IPA for indicating the location of the proximal cache,

generating at the proximal IPA a destination IPA for indicating a destination cache,

generating at the proximal IPA a distance metric by cross referencing the originating URL ~~identifier~~ to one of the plurality of originating URLs ~~identifier~~ and to a respective one of the plurality of distance metrics for indicating a web hop distance of any number of the plurality of cooperative web caches through which the web content data would be communicated from the distal web cache to the destination web cache,

associating the proximal IPA and the originating URL and the distance metric as the routing information, and

1 transmitting the routing information in a routing packet  
2 within a routing protocol from the proximal cache at the proximal  
3 IPA to the destination cache at a destination IPA, the transmitting  
4 of the routing information associates the sourcing IPA the  
5 originating URL with the destination IPA.  
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7 13. (Currently Amended) The method of claim 12 wherein,  
8 the originating URL identifier is selected from the group  
9 consisting of,

10 an exact URL identifier ~~being an exact URL~~ comprising a  
11 plurality of URL components,

12 a wildcard URL identifier ~~being a wildcard URL~~ comprising a  
13 plurality of URL component a last URL component of which being a  
14 wildcard component, and

15 a coded URL identifier ~~being a coded URL~~ comprising a series  
16 of hashing codes of a decomposed URL being a decomposition of the  
17 exact URL or the wildcard URL ~~selected from the group consisting of~~  
18 ~~either an exact URL or a wildcard URL each of which comprising a~~  
19 ~~series of URL components~~, the series of hashing codes being a  
20 sequence of hashing codes of respective hashing of URL segments of  
21 a respective series of increasingly concatenated URL components or  
22 the series of URL components of the exact URL or the wildcard URL.  
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1 14. (Currently Amended) The method of claim 12 further comprising  
2 the steps of:

3 repeating the original URL identifier generating step,  
4 proximal IPA generating step, distance metric generating step, the  
5 and associating step, a plurality of times for generating a  
6 plurality of routing information each comprising an originating URL  
7 ~~identifier~~ and a respective distance metric, and

8 incorporating the plurality of routing information within a  
9 protocol data structure within the routing packet prior to the  
10 transmitting step, the routing protocol packet comprising the  
11 originating URL and a the respective distance metric and comprising  
12 the proximal IPA and the destination IPA.

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14 15. (Currently Amended) The method of claim 12 wherein,

15 the storing steps creates a routing table for cross referencing  
16 the plurality of originating URL ~~identifier~~ to the plurality of  
17 distance metrics and to one or more juxtaposed cooperative web  
18 caches IPAs of one or more juxtaposed cooperative web caches of the  
19 cooperative web caches, the one or more juxtaposed cooperative web  
20 caches for routing originating URLs ~~identifiers~~ to distal web  
21 caches storing the web content data of the respective plurality of  
22 originating URLs ~~identifiers~~.

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24 16. (Previously Presented) The method of claim 15 wherein,

25 the proximal cache and the one or more juxtaposed cooperative  
26 web caches being within a local group of cooperative web caches.

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1 17. (Previously Presented) The method of claim 16 wherein,  
2 the proximal cache is within one or more local groups of  
3 cooperative web caches.  
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5 18. (Previously Presented) The method of claim 1 wherein,  
6 the routing information is communicated in a packet comprising a  
7 routing item associating the sourcing IPA and the originating URL.  
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9 19. (Currently Amended) The method of claim 1 further comprising  
10 the step of,

11 storing in the destination cache at the destination IPA in a  
12 forwarding and routing table the association between the URL and  
13 the source IPA, the forwarding and routing table for determining  
14 the source IPA from a URL request for forwarding and routing a  
15 request for web content data to the source IPA.  
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18 20. (Currently Amended) The method of claim 8 further comprising  
19 the step of,

20 storing in the destination cache at the destination IPA in a  
21 forwarding and routing table the association between the URL and  
22 the source IPA, the forwarding and routing table for determining  
23 the source IPA from a URL request for forwarding and routing a  
24 request for web content data to the source IPA.  
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